



# Kopernik Observatory & Science Center

698 Underwood Road, Vestal, NY 13850

Phone: 607-748-3685 \* Fax: 607-748-3222 \* [www.kopernik.org](http://www.kopernik.org)

## Spring 2017 Public Program Schedule

Doors open at 7:30 p.m., programs start at 8 p.m. *unless otherwise indicated*

Programs are followed by viewing (if clear), telescope tours (if cloudy).

Adults: \$5; Seniors/Students: \$3; Family: \$16 maximum; Kopernik Members: Free Admission

### **March 3: Fossils & Rocks of Central New York – Bruce Oldfield, SUNY Broome**

What do the different types of fossils and rocks in our area tell us about our geologic history? During the Late Devonian Period some 365 million years ago, South Central New York was on a tropical peninsula thirteen degrees below the equator with the ancestral Appalachians to the southeast and the Catskill Sea to the north and west. Professor Oldfield will talk about the geological history of the area. Bring your own rocks and fossils to be identified!

### **March 10: Ancient Mayan Astronomy: Their Knowledge and the Story of its Discovery – Allen Lutins**

The ancient Maya of Central America achieved a sophisticated understanding of the motions of the heavenly bodies over a thousand years before the arrival of Columbus. Allen Lutins, a former archaeologist who did field work at the Mayan ruins at Nohmul in northern Belize, will describe the breadth of their knowledge and the exciting history of how we discovered their accomplishments.

### **March 17: The Launch Abort System of the Space Shuttle - David Woods, IBM/Lockheed Martin Engineer (ret.)**

Engineers are problem solvers. Learn how they use both unclassified and classified information to solve some interesting and complicated engineering problems. Using the example of Space Shuttle Discovery's launch abort system on its first mission attempt, Mr. Woods will show how engineers research a problem and, in this case, how they found a surprising solution to allow it to go on to be the most successful of all of the Space Shuttles.

### **March 18 (Saturday, 1-4 p.m.): Kopernik Summer Camp Open House *FREE Admission!***

Preview Kopernik's Link Summer STEM Exploration camps for students in grades 1-12. Meet teachers for these camps, who will be available to discuss what the students will do in the camps and demonstrate some of the planned activities. See [www.kopernik.org](http://www.kopernik.org) for details.

### **March 24: Beginning Telescopes – Kopernik Astronomical Society Members**

Learn about the different types of telescopes and what objects are best viewed through them. If you have a telescope, bring it to Kopernik, no matter what condition it is in, and receive a lesson on assembling and using it from a member of the Kopernik Astronomical Society.

### **March 31: Mysterious Flashes from the Distant Universe – Shami Chatterjee, Ph.D., Cornell University**

With recent strides in radio telescope sensitivity and computational capacity, astronomers have discovered fast radio bursts, millisecond-long flashes of radio waves that appear to come from random directions in the sky. Recently, one of these bursts was caught in the act. Its source has been identified and appears to be 2.5 billion light years away. What could produce flashes so bright that they are detectable across the universe, and yet so common that there are five to ten thousand of these bursts each and every day? Professor Chatterjee is one of the astronomers in hot pursuit of the answer.

### **April 7: (6:30 p.m.): Life on the Space Station – Tish Bresee, NASA JPL Solar System Ambassador**

Bring the kids to learn about life aboard the International Space Station (note the early start time). Ambassador Bresee will give you a virtual tour through the ISS and guide students of all ages in various NASA activities. After building their own model of the Orion Spacecraft to take home, children may dream of living in space. Some adults might want to go there, too! If clear, see a gibbous moon, Jupiter, and more!

### **April 14: No Friday Night Program**

### **April 21: Climate Change - Will It Ruin Your Day - Nicholas M. Guydosh, Ph.D., NASA Earth Ambassador**

Scientists tell us that not only are we in for global climate change, but it may be the result of human activity. We are told that we may be dangerously close to the *tipping point*, the point of no return where adaptation rather than prevention may be the only option. Professor Guydosh will examine the scientific evidence of global climate change and also human involvement. There will be a focus on the scientific methods used to determine global temperatures and carbon dioxide levels in the atmosphere both now and in the distant past.



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### April 28: The Physics of Music – *Jeff Barker Ph.D., Binghamton University*

Why do musical instruments sound the way they do? Why, when playing the same note, does a violin sound different than a trumpet or an oboe? Professor Barker will discuss the physics behind different types of instruments. He will discuss wave resonance, use a spectrum analyzer to illustrate harmonics, and will demonstrate how harmonics give a number of instruments their recognizable sound.

### May 5 (7 p.m.): What Goes Around, Comes Around! *Brian Cavallaro, “Boomerang Brian”*

Meet local boomerang expert Brian Cavallaro as he demonstrates throwing various boomerangs. Learn about the history, art and aerodynamics of these returnable ancient hunting weapons. The program will begin with a short presentation and then move to Kopernik’s north lawn for a throwing session. Participants will have the opportunity to try for themselves and if interested, to buy a boomerang. If you have your own, bring it to be appraised and learn how to throw it properly.

### May 6 (Saturday, 7 p.m.): Moonlight Café

Looking for something different to do on a Saturday night? Gaze at the stars during this adults-only evening at Kopernik. The center is transformed into a Moonlight Café, where you can enjoy fresh-brewed coffee, tea, and delicious desserts along with a fascinating introduction to the stars and outer space.

Register by May 1 through SUNY Broome Continuing Education at (607) 778-5012.

### May 12: TigerTronics UE/Vestal Competition Robot – *Deborah Daugherty, Union-Endicott High School*

Get an up-close look at the latest robot designed by the Union-Endicott/Vestal Robotics team. Their robot performs autonomous and radio controlled actions to accomplish a number of tasks in a multi-team competition. Students on the team will demonstrate the robot, show video from their recent competition in Pittsburg and answer questions about its design and operation. If clear, see Jupiter, Saturn, Mars and the moon.

### May 19: Beer Brewing Basics – *Seth Weisel, Brewmaster, Galaxy Brewing*

Have you ever wondered how beer was made or thought about brewing your own? Learn about the science of brewing and malting. Find out about barley germination, malting processes, fermentation, and various aspects of beer haze, foam, and color. Learn about flavor chemistry and spoilage microorganisms. In addition, enjoy a brief history of brewing from past to present.

### May 26: Preview to Cassini’s Grand Finale – *Keith Werkman, Ph.D., Kopernik Astronomical Society*

The Cassini spacecraft has been in orbit around Saturn for over a decade. Get a review of its findings. See amazing close-up images of Saturn’s rings, moons and atmosphere. Learn about its upcoming deliberate fiery plunge into Saturn’s atmosphere!

*Kopernik is open every Friday night, regardless of sky conditions, March through mid-December.*

### Save the Dates:

RocketFest 2017: Saturday, June 10

Great American Solar Eclipse: Monday, August 21

